AMERICAN SOCIETY OF CIVIL ENGINEERS

PROCEEDINGS

VOL. 55 NOVEMBER, 1929 NO. 9

SOCIETY AFFAIRS

SOCIETY OFFICERS NOMINATED FOR 1930

During the month of October the list of official nominees for Society officers for 1930 has been completed. On October 7, the official Nominating Committee, meeting in Boston, Mass., chose the candidate for President. Shortly afterward the "Second Ballot for Official Nominees" for the remaining offices was canvassed at Society Headquarters, as noted in detail elsewhere in *Proceedings*.

Combining the results of these two activities, the full list of nominees becomes as follows:

For President, John F. Coleman.
For Vice-President, Zone I, Frank E. Winsor.
For Vice-President, Zone IV, Joseph M. Howe.
For Directors,
District No. 1, Ole Singstad, John R. Slattery.
District No. 4, Charles H. Stevens.
District No. 11, Franklin Thomas.
District No. 14, Don A. MacCrea.
District No. 15, Allan T. Dusenbury.

Final ballots for election to these offices will be issued to the membership in time for canvassing at the Annual Meeting, 1930. Biographical sketches of the various nominees will appear in the December *Proceedings*.

FALL MEETING IN BOSTON

A touch of the historic past, which makes itself felt in all activities around Boston, together with a demonstration of the up-to-date present, combined to make the Fall Meeting, October 9 to 11, 1929, memorable in many respects. Visitors were led by the program itself to hope for great things of this meeting, and they were entirely justified. Efficient preparation, congenial surroundings, and hospitable entertainment were some of the elements that went toward the success of the meeting.

A Metropolitan District

At the outset, the proprieties of the occasion were fully met by greetings both from the State and the City of Boston. To these, President Marston replied in a fitting manner; and the meeting was off to an auspicious start.

As for the remainder of the general technical program, the dominating features were the engineering activities of the Metropolitan District centering around Boston. Starting with a bird's-eye view of the general administrative problem, consideration was given in turn to various park problems, water supply, transportation, and sewerage. Besides the technical value of these excellent treatments, visiting engineers obtained a ready conception of the city and its environs, and thus were better able to appreciate and enjoy the many subsequent trips and visits.

A Capital City

The local theme was in evidence also at the Technical Division meetings on Thursday, October 10. Very appropriately, the City Planning Division began its session with the consideration of the City Plan of Boston, Capital of the Commonwealth. From that, it drifted into the more general topic of Education and Administration as Applied to City Planning.

Contemporaneously with this meeting a most interesting session was being held by the Structural Division. The main topics discussed were the new Lake Champlain Bridge and Advances in Soil Mechanics.

After a brief intermission for lunch the Afternoon Sessions of the three Divisions started simultaneously. European Hydraulic Power Plant Practice was on

the schedule for discussion by the Power Division, whereas questions of Distribution of Fees and Taxes and of Highway Beautification occupied the session of the Highway Division.

The Surveying and Mapping Division had a complete and interesting program marked out. Individual papers and discussions covered various phases of surveying work in connection with the new Metropolitan District Water Supply extension for Boston. Still another topic was that of Triangulation in some of its legal aspects in Massachusetts.

Ladies Entertained

While these sessions of a serious character were holding the attention of the men, the Local Ladies' Committee saw to it that the visiting ladies were not forgotten. On Wednesday afternoon the program led them to the celebrated Gardner Museum, of renown even outside of Boston. The trip for Thursday was of greater scope and duration. Starting during the morning, it included first the famous Wayside Inn, in Sudbury, where luncheon was enjoyed, and then the historic points around Concord and Lexington, bringing back some of the celebrated scenes of Revolutionary times.

During each evening the men joined with the ladies in enjoying a brilliant social event at the hotel. The first evening—Wednesday—it was a dinner and entertainment. At least for the men, the gaiety and enlivening character of the evening made a pleasant interim between the more serious business of the technical sessions.

The Dinner Dance on Thursday evening was even more formal. Dancing was enjoyed by a large number until a late hour and doubtless would have continued much longer except for the necessity for an early start on the following morning.

The North Shore

With so many possible choices for worth-while trips, the Local Committee wisely decided to exhibit the beauty of the famous North Shore as far as Gloucester, including many of the celebrated communities which have added to the scenic and industrial importance of this vicinity. A line of buses carried happy groups out through the parks of Boston and beyond into the boulevard bordering the Atlantic toward Gloucester, Marblehead, and all the other famous watering places in Northern Massachusetts.

Following the morning drive, some were introduced for the first time to the celebrated New England Shore dinner, at Swampscott. Then the return to Boston was accomplished by night-fall and the various parties broke up. By common consent the entire day had provided enough of variety to suit the critical, and enough in quantity to satisfy the most ambitious—in other words, it was an occasion that justified the fondest expectations and left a pleasing impression of the Fall Meeting.

Attendance Record

As was expected, the Boston Meeting attracted wide attention among engineers, both members and non-members, for many miles around. The immediate locality of city and suburbs was, of course, well represented. Doubtless, also the excellence of the program served to attract many others. How well these various efforts were successful, is indicated by the record of attendance as follows: Total registration, 810; General Sessions, 260; City Planning Division, 80; Structural Division, 250; Power Division, 65; Highway Division, 65; Surveying and Mapping Division, 110; Wednesday entertainment, 330; Dinner Dance, 185; and North Shore Trip, 150.

Efficiency

It may be said that with such a situation and opportunity no city could fail to develop a fine Society Meeting. It remained, however, for the Local Committee to capitalize these excellent opportunities and to invest a great deal of hard work in preliminary plans. The completeness of preparation and the smoothness of operation reflect great credit on the Local Management. The Boston Meeting was no less than it had been expected—delightful, complete, and wholly satisfactory.

PRIZE WINNERS

Among the other duties of the October Meeting of the Board of Direction is the approval of the choices for the winners of the several prizes offered by the Society. For the current year, the awards are made on the basis of papers appearing in *Transactions*, Vol. 92 (December, 1928). Actual awards will be made at the time of the Annual Meeting, on Wednesday morning, January 15, 1930.

The list of prizes, prize winners, and papers for which they were thus honored, as approved by the Board of Direction, is as follows:

The Norman Medal:

To G. T. Rude, M. Am. Soc. C. E., for his paper, "Tides and Their Engineering Aspects".

The Thomas Fitch Rowland Prize:
To D. B. Steinman and William C. Grove, Members, Am. Soc. C. E., for their paper, "The Eye-Bar Cable Suspension Bridge at Florianopolis, Brazil".

The James Laurie Prize:
To R. H. Keays, M. Am. Soc. C. E., for his paper, "Construction Methods on the Moffat Tunnel".

The Arthur M. Wellington Prize:
To F. C. Carstarphen, M. Am. Soc. C. E., for his paper, "Aerial Tramways".

The Collingwood Prize for Juniors:
To William J. Cox, Assoc. M. Am. Soc. C. E., for his paper, "Automobile Hazard in Cities and Its Reduction".

INTERNATIONAL ENGINEERING CONGRESS

Just about as this issue of *Proceedings* appears, but half-way farther around the world, a great gathering is just getting under way—the World Engineering Congress in Tokyo. With it the result of literally years of preparation and the efforts of hundreds of engineers all over the globe will find expression.

A month ago, the extensive efforts in preparation for this monumental gathering were very much in evidence at Headquarters, as many of the delegates, particularly from foreign countries, were feted in and around New York prior to their departure for Japan. A round of luncheons, dinners, and inspections engrossed these delegates for several days.

After this round of entertainment, a happy party left Society Headquarters on October 2. En route, they stopped in Washington where President Hoover, and the Japanese Ambassador, Katsuje Debuchi, showed their personal interest in the Congress. Similar happy stops were made in Chicago, Los Angeles, and San Francisco, as well as at Honolulu, before the final arrival at Japan, scheduled for October 27.

The wide support of this important convention from engineers the world over, is a happy omen for engineering. Groups from every Continent in the world are expected to gather and exchange ideas of technical importance to civilization. Aside from this more or less professional aspect, the personal contacts should mean a more complete understanding and a creation of bonds of human sympathy among the nations represented. To have helped in such an effort should make engineers justly proud.

MEDALS AWARDED

During the last few months announcements have been made of the awards of both the Kelvin and the Lamme Medals. As the name implies the Kelvin Medal is a British honor, particularly under the jurisdiction of the Institution of Civil Engineers. However, the recipients are not confined to the English race; in fact, recommendations are received from all parts of the civilized world. From these, every three years a notable scientist is chosen for distinction in this realm in which Lord Kelvin was such an exemplary success.

The present award is given to M. André Blondel, an eminent French engineer. M. Blondel is entitled to an imposing array of offices and distinctions. Among these may be mentioned: Membre de l'Académie des Sciences, Membre de l'Institut de France, Officier de la Legion d'Honneur, President d'Honneur de la Société Française des Electriciens, Inspecteur Général des Ponts and Chaussees, etc. This honor, therefore, simply adds to the fame of an already distinguished French engineer.

The Lamme Medal, on the other hand, is typically an American institution. It is named in honor of the late Chief Engineer of the Westinghouse Electric and Manufacturing Company and is bestowed annually by the Society for the Promotion of Engineering Education. Under its terms, this distinction is given for "Accomplishment in Technical Teaching or Actual Advancement in the Art of Technical Training."

The latest recipient, recently announced, is Irving P. Church, Emeritus Professor of Applied Mechanics and Hydraulics at Cornell University. Practically his whole life has been devoted to teaching engineers the subjects of mechanics and hydraulics, and in this field his fame has become nation-wide. Not only as a teacher, but as an author of engineering texts, is he acclaimed. It is interesting to note that the previous and first winner of the Lamme Medal was also closely allied with Civil Engineering, in the person of George F. Swain, Past-President, Am. Soc. C. E.

POPULAR RESEARCH NARRATIVES, VOL. 3

Many engineers, in past years, have seen, read, been interested in, and profited by, the simple yet fascinating stories of engineering research under the title of Popular Research Narratives. Each of these volumes consists of fifty

brief descriptions. They are varied in character, simply told, and have at once a scientific and practical application.

In this, the third of such volumes, the notable list of subjects is continued. Not a little of its value comes from the foreword by Gen. J. J. Carty, himself an Engineer. In recommending this little book to general readers, he makes some interesting observations:

"The progress of scientific research in our country depends in the last analysis upon the support which it receives from the public. There is no lack of problems to be solved, all of which in one way or another affect the welfare of the Nation, and there will be no lack of competent scientific investigators who will solve them if the necessary financial support is provided. * * *

"The higher values of scientific research must be stated in terms of human achievement, the elimination of poverty and disease, the advancement of learning, the growth of right living and good understanding among men. Scientific research is indispensable to the attainment of all of these ends.

"According to the vision of Science life must no longer be regarded as a struggle among men for a limited store where one man's gain or one nation's gain must be another's loss. Under the banner of scientific research we are asked to join with our fellow men working together in controlling and utilizing the boundless forces of Nature. Such is the message of Research Narratives.

"American business and commerce and industry and the American public should be urged to give to scientific research in our universities and elsewhere that support which it so greatly needs. 'Science', said the great Pasteur, 'is the soul of the prosperity of nations and the living source of all progress.' For all of the benefits which it confers upon us Science asks only that we provide its zealous workers with the opportunity to multiply their efforts in our behalf."

A member who may wish to continue the perusal of these interesting stories, or those who have not yet had the pleasure, may obtain copies by addressing Engineering Foundation, 29 West 39th Street, New York, N. Y. The price is $1.00 each.

JOHN FRITZ GOLD MEDAL TO RALPH MODJESKI

The John Fritz Medal Board of Award at its regular Annual Meeting, September 27, 1929, voted its Gold Medal to Ralph Modjeski, M. Am. Soc. C. E. The award was tentatively made a year ago by the Board, which is composed of sixteen recent Past-Presidents of the four National Societies of Civil, Mining and Metallurgical, Mechanical, and Electrical Engineers, having together a membership of nearly 60 000. The award was unanimous.

It is as a bridge builder that Mr. Modjeski has achieved fame. Streams and chasms are barriers to travel and transportation. Consequently, the building of bridges, one of the older engineering arts, has had profound political and social as well as economic importance. With development of civilization and increase of ways for transportation, highways and railroads have become obstacles one to the other at places of crossing, demanding still more bridges.

In recognition of the increasing contribution of bridge builders to the progress of humanity, and in appreciation of the distinguished scientific and industrial achievements of Mr. Modjeski as one of America's foremost bridge builders, this award was made. The citation accompanying it reads: "For notable achievement as an engineer of great bridges combining the principles of strength and beauty."

Ralph Modjeski was born in Cracow, Poland, in 1861 and came to this country with his parents in 1876. His mother, Madame Modjeska, achieved distinction as a dramatic artist and is well remembered by persons whose memories include the last quarter of the Nineteenth Century. His engineering education was gained at the École des Ponts et Chaussées in Paris. On returning to the United States he found engagements on numerous important bridges. As designer, construction engineer, or consultant, he has had various measures of responsibility for many of America's most notable bridges. Only a few may be mentioned here: McKinley Bridge over the Mississippi River at St. Louis, Mo.; Columbia River Bridge, at Celilo, Ore.; Keokuk Bridge over the Mississippi River; Ohio River Bridge at Cincinnati, Ohio; Thames River Bridge at New London, Conn.; Quebec Bridge; Poughkeepsie Bridge; Philadelphia-Camden Bridge; and Manhattan Bridge, New York.

Recent recipients of the Medal have been President Hoover, Gen. J. J. Carty, Elmer A. Sperry, Edward Dean Adams, John F. Stevens, Ambrose Swasey, and Senatore Guglielmo Marconi. The Society Members on the present Board of Award are Robert Ridgway, George S. Davison, John F. Stevens, and Lincoln Bush, Past-Presidents, Am. Soc. C. E.

Report of Tellers on Second Ballot for Official Nominees

"33 West 39th Street, New York, N. Y.,
"October 15, 1929.

"To the Secretary,
American Society of Civil Engineers:

"The Tellers appointed to canvass the Second Ballot for Official Nominees report as follows:

"Total number of ballots received	2 791
"Deduct:	
Ballots from members in arrears of dues	33
Ballots not signed	22
Ballots with illegible signature	1
Ballots from non-corporate members	2
Ballots from members voting from wrong district	1
Ballots from members who have died since voting	2
"Total not entitled to vote	61
"Ballots canvassed	2 730

"For Vice-President, Zone I:

Frank E. Winsor	1 022
Blank	21
Void	2
Total	1 045

"For Vice-President, Zone IV:

Joseph M. Howe	890
Blank	7
Void	†133
Total	1 030

"For Director, District 1:

(Two to be elected)

Ole Singstad	604
John R. Slattery	596
Blank	76
Void	0
Total	*638

"For Director, District 11:

Franklin Thomas	333
Blank	17
Void	0
Total	350

"For Director, District 4:

Charles H. Stevens	281
Blank	5
Void	0
Total	286

"For Director, District 14:

Wesley W. Horner	168
Don A. MacCrea	201
Blank	0
Void	0
Total	369

"For Director, District 15:

Allan T. Dusenbury	226
Victor H. Cochrane	98
Blank	2
Void	2
Total	328

"Respectfully submitted,
"Walter E. Spear, *Chairman*,

"D. W. Howes,	"J. A. Lenecek,
Charles L. Spaulding,	Charles D. Thomas,
Stephen E. Coombs,	Jacob Mechanic,
A. Lawrie Kurtz,	F. B. Marsh,
J. Endicott Porter,	Charles M. Madden,
James H. Richardson,	*"Tellers."*

* Number of valid ballots cast, on most of which were two nominations for Director.
† Includes large vote for D. C. Henny, M. Am. Soc. C. E., who had withdrawn.

Local Sections*

Colorado.—September 16, 1929. A dinner meeting of the Section was held at the Denver Athletic Club. An illustrated address entitled, "A Famous Early Engineer—Leonardo Da Vinci", depicting the life and attainments of this eminent man, was given by L. G. Carpenter, Consulting Engineer, of Denver. Jay Turley, Civil Engineer and Lawyer of New Mexico, spoke briefly concerning some of the problems relative to the Colorado River. Robert Follansbee, District Engineer, U. S. Geological Survey, was appointed Representative of the Colorado Section to the World Engineering Congress to be held in Japan in November, 1929. Attendance 22.

Georgia.—August 5, 1929. A regular meeting of the Section was held at the Atlanta Athletic Club. A resolution was passed relative to the appointment of a member on a joint committee to investigate the alleged negligence of contractors engaged in the construction of school buildings in Atlanta. Director J. Houston Johnston then gave an interesting report on the activities of the Local Sections' Meeting held at the recent Annual Convention of the Society in Milwaukee, Wis. Attendance 15.

September 9, 1929. A noon-day meeting was held at the Atlanta Athletic Club. Business matters of importance were attended to after which Mr. W. H. Wier spoke on "State Control of Sewage Disposal and Water Supply". Attendance 10.

Illinois.—September 30, 1929. A luncheon meeting of the Section was held at the Chicago Engineers' Club. Various business was transacted, including current Society matters of interest to the Section. Attendance 38.

Los Angeles.—September 11, 1929. The regular monthly meeting of the Section, held in the Engineers' Club Rooms, was devoted to a program presented by the Engineering Staff of the Water Department of the City of Pasadena, Calif. The speakers for the occasion were S. B. Morris, Chief Engineer, Claude W. Sopp, Assistant Engineer, and Cecil Pierce, Designing Engineer, all of the City Water Department, also James M. H. Howard, former City Attorney and now Special Counsel to the Water Department. A detailed description was given of the city's unique water development project, including the proposed storage dam in San Gabriel Canyon for which a $10 000 000 bond issue was recently voted. A few days before the meeting many of the members had visited the San Gabriel Dam and the Pasadena Dam site of which the salient features were pointed out by Mr. Morris. This excursion added great interest to the meeting.

Sacramento.—August 27, 1929. Harry B. Walker, Professor of Agricultural Engineering at the University of California, addressed the Section on "Some Engineering Factors Effecting Agriculture". Attendance 28.

September 3, 1929. "Types of Airplane Motors" was the subject of an illustrated talk by Royal U. St. John, President of the Sacramento Chapter of the American Aeronautical Society. Attendance 22.

* For list of Local Section Officers, Rules, etc., see 1929 Year Book, p. 46.

September 10, 1929. Thomas E. Stanton, Jr., Materials and Research Engineer of the State Division of Highways, gave an account of the explorations of Jebediah Smith, the first American to cross the Great Desert and penetrate Upper California in 1826-28. Attendance 27.

September 14, 1929. Thirty-one members and friends of the Sacramento Section joined with the San Francisco Section in an inspection trip to the $12 000 000 bridge over the Carquinez Straits. This bridge is now under construction by the Southern Pacific Railroad Company.

September 17, 1929. Fred C. Scobey, Senior Irrigation Engineer for the Department of Public Roads, U. S. Department of Agriculture, gave an illustrated address entitled the "Unusual Flow Conditions in Water Conduits and Their Influence on Carrying Capacity". Attendance 38.

San Francisco.—August 20, 1929. A regular dinner meeting of the Section was held at the Engineers' Club. Following the transaction of matters of a business order, Dr. Miller McClintock, Director, Erskine Bureau for Street Traffic Research, Harvard University, presented a most interesting address on "Some New Engineering Problems in Street Traffic Control." Attendance 110.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 73 and 74 of the Year Book for 1929.

Book Notices*

(September 2 to September 30, 1929)

Barrages Conjugués et Bassins de Compensation. By Georges Laporte. Paris, Dunod, 1929. 116 pp., diagrams, 10 x 7 in., paper. 35,50 fr.

This volume discusses the effect upon each other of two neighboring power developments on the same river, the equipment appropriate in these circumstances, the rules for using the water, and the reserves and compensating reservoirs required to maintain a flow to satisfy the owners of its banks.

Die Dauerprüfung der Werkstoffe. By O. Föppl, E. Becker, and G. v. Heydekampf. Berlin, Julius Springer, 1929. 124 pp., illus., diagrams, 10 x 7 in., paper. 9,50 r.m.

A variety of machines for determining the fatigue of metals subjected to vibration is described, and their uses and methods of testing, together with results, are explained.

Déformations Permanentes et Ruptures des Aciers. By Paul Régnauld. Paris, Dunod, 1929. 90 pp., diagrams, tab., 10 x 7 in., paper. 23,30 fr.

The work of various investigators on the effect of permanent deformations and sudden shocks on the strength of steel, are noted. The formation of permanent deformations and the ruptures that these may cause, the effect of shock, and the stability of equilibrium of deformed steel are discussed.

Eisenbetonbau, T. 2; Anwendungen im Hoch- und Tiefbau. By C. Kersten. Twelfth Edition. Berlin, Wilhelm Ernst & Sohn, 1929. 202 pp., illus., diagrams, 8 x 5 in., paper. 6.—r.m.

This book is intended to show the student who has mastered the basic principles of design, how reinforced concrete is actually used. A profusion of sketches illustrates applications for roofs, floors, stairs, walls, and frames of buildings, for foundations and retaining walls, for water mains, tanks, and dams, etc.

Field Engineering. By William H. Searles. Twentieth Edition, Revised and Enlarged by H. C. Ives. N. Y., John Wiley & Sons, 1929. 2 v. in 1, diagrams, tab., 7 x 4 in., fabrikoid. $4.00.

The new edition of this well-known manual has been expanded by the addition of a chapter on highway curves. Seven-place tables of the natural trigonometric functions replace the former five-figure tables, and the trigonometric formulas have been re-arranged and extended.

Handbook of Formulas and Tables for Engineers. By Clarence A. Peirce, Walter B. Carver, and Charles E. O'Rourke. Third Edition. N. Y., McGraw-Hill Book Co., 1929. 228 pp., 8 x 5 in., fabrikoid. $2.50.

The aim of the compilers has been to produce a book of convenient size for the pocket, containing the most useful tables and formulas. In this edition, some of the more essential civil engineering data have been added.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Hydraulic Laboratory Practice. Translation, Revised to 1929, of "Die Wasserbaulaboratorien Europas", by V. D. I. Edited by John R. Freeman. N. Y., Am. Soc. of Mech. Engrs., 1929. 868 pp., illus., 12 x 9 in., cloth. $10.00.

Some years ago Mr. Freeman urged the German Society of Engineers to publish a volume describing the hydraulic laboratories of Europe and the principal research work of each of them. The result was "Die Wasserbaulaboratorien Europas" (1926), which now appears in English under his editorship. The English edition will be of interest to every hydraulic engineer. To the professor of hydraulics it affords descriptions of the important laboratories of the world, of their equipment, organization, management, and of the work which they have carried out. The engineer in practice will find many helpful data in the text and in the numerous bibliographies. No such general survey of experimental activities in this science has hitherto existed. The translation contains much more material than the original. Appendixes describing other European laboratories, and some American ones, have been added. Biographies of the directors of the various laboratories have been inserted, as well as several monographs on important general subjects.

Les Pompes Centrifuges. By C. Pfleiderer. Translated and Annotated by Louis Bergeron. Paris, Dunod, 1929. 508 pp., illus., diagrams, 10 x 7 in., paper. 118,70 fr.

This is a French translation of "Die Kreiselpumpen," an important treatise on centrifugal pumps. The translator has added the results of his own investigations and experience.

Simplification of Highway Traffic. By William Phelps Eno. Saugatuck, Conn., Eno Foundation for Highway Traffic Regulation, Inc., 1929. 206 pp., illus., diagrams, 9 x 7 in., cloth. $5.00; paper, $3.00.

The author discusses the selection and use of traffic guides, systems of regulation, and methods of accelerating traffic and increasing safety. C. J. Tilden, M. Am. Soc. C. E., in an appendix gives an account of Mr. Eno's activities and of the development of traffic regulation since they began.

Textbook on Highway Engineering. By D. P. Krynine. Moscow, U. S. S. R., 1929. 923 pp., 736 illus. (Gift of Author.)

This is an unusually comprehensive scientific treatise on the design and construction of roads of all types, with special reference to the practice of Russia, United States, and Germany. It covers road drainage and drainage structure; principles of soil physics; testing of road materials; mechanics of vehicular motion; highway maintenance in winter and early spring; economics; highway financing and administration; construction and maintenance of highways in war time; cost data; and bibliography.

Untersuchungen über die Strömungen des Wassers in Konvergenten und Divergenten Kanälen. By Johann Nikuradse. (Forschungsarbeiten . . . Heft 289). Berlin, V. D. I. Verlag, 1929. 49 pp., diagrams, tab., 11 x 7 in., paper. 6.—r.m.

This book gives the results of a careful experimental study of turbulent flow of water in divergent and convergent channels, and of distribution of velocities and pressures in these currents, as compared with those obtained by other investigators on air currents.

Die Vereinfachte Berechnung Biegsamer Platten. By H. Marcus. Second Edition. Berlin, Julius Springer, 1929. 126 pp., diagrams, 10 x 7 in., paper. 9.—r.m.

This simplified method has the approval of the Deutscher Ausschuss für Eisenbeton. The author sets forth his method of approximation in calculating floor slabs, gives formulas, and illustrates their use.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.	*American Concrete Institute, Proceedings* (Y.)	Detroit
A. I. E. E.	*American Institute of Electrical Engineers Journal* (M.)	New York
A. R. E. A.	*American Railway Engineering Association, Proceedings* (Y.)	Chicago
A. S. T. M.	*American Society for Testing Materials, Proceedings* (Y.)	Philadelphia
Am. Soc. C. E.	*American Society of Civil Engineers, Proceedings* (M.)	New York
Am. Soc. Mun. Impvts.	*American Society for Municipal Improvements, Proceedings* (Y.)	New York
Am. W. W. Assoc.	*American Water Works Association, Journal* (M.)	Baltimore
Am. Wood Prs. Assoc.	*American Wood Preservers Association, Proceedings* (Y.)	Chicago
Ann. P. et C.	*Annales des Ponts et Chaussées* (Bi-M.)	Paris
Ann. T. P. Belg.	*Annales des Travaux Publics de Belgique* (Bi-M.)	Brussels
Assoc. Ing. Gand.	*Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand* (Q.)	Ghent
Bost. Soc. C. E.	*Boston Society of Civil Engineers, Journal* (M.)	Boston
Can. Engr.	*Canadian Engineer* (W.)	Toronto
City Plan.	*American City Planning Institute* (Q.)	Boston
Comwlth. Engr.	*Commonwealth Engineer* (M.)	Melbourne
Conc.	*Concrete* (M.)	Chicago
Cornell C. E.	*Cornell Civil Engineer* (M.)	Ithaca
Dock & Harbour	*Dock and Harbour Authority* (M.)	London
Eng.	*Engineering* (W.)	London
Eng. & Contr.	*Engineering and Contracting* (M.)	Chicago
Eng. Inst. Can.	*Engineering Institute of Canada, Journal* (M.)	Montreal
Eng. N. R.	*Engineering News-Record* (W.)	New York
Engr. Soc. W. Pa.	*Engineers' Society of Western Pennsylvania, Journal* (M.)	Pittsburgh
Engr.	*Engineer* (w.)	London
Engrs. & Eng.	*Engineers and Engineering, Engineers' Club of Philadelphia* (M.)	Philadelphia
Gas und Wasser.	*Gas und Wasserfach*	Munich
Gen. Civ.	*Le Génie Civil* (W.)	Paris
Gesund. Ing.	*Gesundheits Ingenieur* (W.)	Munich
Hydraulic Eng.	*Hydraulic Engineering* (M.)	Los Angeles
Inst. C. E.	*Institution of Civil Engineers Minutes of Proceedings* (Q.)	London
Inst. Mun. & Co. Engrs.	*Institution of Municipal and County Engineers, Journal* (W.)	London
Int. Ry. Cong. Assoc.	*International Railway Congress Association, Bulletin* (M.)	Brussels
Land. Arch.	*Landscape Architecture* (Q.)	Boston
Mech. Eng.	*Mechanical Engineering* (M.), *Journal of the American Society of Mechanical Engineers*	New York
Mil. Engr.	*Military Engineer* (Bi-M.)	Washington
Min. & Metal.	*Mining and Metallurgy* (M.), *American Institute of Mining Engineers*	New York
Mun. N. & W. W.	*Municipal News & Water Works* (M.)	Chicago
N. E. W. W. Assoc.	*New England Water Works Association, Journal* (Q.)	Boston
N. Y. R. R. Club	*New York Railroad Club, Proceedings* (M.)	Brooklyn
Oest. Ing. Arch. Ver.	*Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift* (F.)	Vienna
Power	*Power* (W.)	New York
Public W.	*Public Works* (M.)	New York
Rev. Gen.	*Revue Générale des Chemins de Fer* (M.)	Paris
Ry. Age	*Railway Age* (W.)	New York
Ry. Eng. & Main.	*Railway Engineering and Maintenance* (M.)	Chicago
R. & S.	*Roads and Streets* (M.)	Chicago
Schw. Bauz.	*Schweizerische Bauzeitung* (W.)	Zurich
Sci. Am.	*Scientific American* (M.)	New York
Soc. Ing. Civ. Fr.	*Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus* (Q.)	Paris
Tech. Gemein.	*Technisches Gemeindeblatt* (F.)	Berlin
Ver. deu. Ing.	*Verein deutscher Ingenieure, Zeitschrift* (W.)	Berlin
West. Constr. N.	*Western Construction News* (F.)	San Francisco
West. Ry. Club	*Western Railway Club, Proceedings* (M.)	Chicago
West. Soc. Engrs.	*Western Society of Engineers, Journal* (M.)	Chicago
Zeit. Bau.	*Zeitschrift für Bauwesen* (Q.)	Berlin
Z. d. Bauver.	*Zentralblatt der Bauverwaltung* (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences

a. Processes of Calculation

Ueber Fourier-Reihen.* (On Fourier Series.) Hans Lieberherr. Schw. Bauz. Aug. 3, '29.

2. Graphical and Nomographical Processes

Les Principes Fondamentaux de la Nomographie.* (Fundamental Principles of Nomography.) Gen. Civ. Aug. 24, '29.

Ueber die Strechgrenze des Flussstahles.* (On the Yield Point of Ingot Steel.) Aug. Kroitzsch. Oest. Ing. Arch. Ver. Aug. 30, '29.

3. Stresses and Strains

Problems Concerning Elastic Stability in Structures.* Discussion: H. M. Westergaard and William Hovgaard. Am. Soc. C. E. Sept., '29.

B. Applied Mechanics

a. Mechanics of Solids

6. Heterogeneous Solids (Reinforced Materials)

Allowable Unit Stresses in Concrete. Walter C. Voss. Bost. Soc. C. E. June, '29.

Design, Flectural Computations and Moment Coefficients, Shear and Diagonal Tension, Bond and Anchorage.* C. Hale Sutherland. Bost. Soc. C. E. June, '29.

The Sustained Loading of Concrete Beams Reinforced with Compressive Steel. G. A. Maney. Eng. & Contr. Aug., '29.

b. Hydraulics

1. Processes of Measurement and Method of Testing

Measurement of Fluids in Pipe Lines.* H. Escher. Comwlth. Engr. Serial beginning Aug., '29.

Hydraulic Measuring Stick.* J. B. Lippincott. West. Constr. N. Aug. 25, '29.

2. Physical Hydraulics

Problems in the Design of Large Pipe-Lines.* Peter Bier. West. Constr. N. Aug. 10, '29.

3. Industrial Hydraulics

State of Oregon Provides Favorable Conditions for Huge Increase in Water Power.* Rhea Luper. (Paper read before Prof. Engrs. Oregon.) Hydraulic Eng. Aug., '29.

Engineering Requirements That Determined the Design of the Riverbend Power Plant.* D. Nabow. Power Sept. 3, '29.

Back River Power Development, Montreal.* J. F. Roberts. Can. Engr. Aug. 20, '29.

The Hydro-Electric Installation at Hammarforsen, Sweden.* Eng. Serial beginning Aug. 23, '29.

Power Development in the Tennessee Basin.* J. A. Switzer. Power Aug. 27, '29.

Niagara Power.* Norman R. Gibson. Am. Soc. C. E. Sept., '29.

Erweiterung der Hochdruck-Speicheranlage des Murg-Schwarzenbach-Werkes.* (Extension of the High-Pressure Storage Plant of the Murg-Schwarzenbach Works.) E. Treiber. Ver. deu. Ing. Aug. 17, '29.

4. Dams

Construction Ingenuity Displayed at Diablo Dam.* Eng. N. R. Aug., '29.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, Gravel, etc.

Concrete Materials, Tests, Quality and Construction. Dean Peabody, Jr. Bost. Soc. C. E. June, '29.

Concrete Mixtures—Design and Control.* (From *Bulletin* Portland Cement Assoc.) Can. Engr. Serial beginning Sept. 3, '29.

Concrete Mixtures—Design and Control. (From *Bulletin* Portland Cement Assoc.) Can. Engr. Serial beginning Sept. 10, '29.

Tests on Concrete Made at Coolidge Dam. Bruce Johnston. Eng. N. R. Sept. 19, '29.

Les Normes de l'Association Suisse pour l'Essai des Matériaux, pour la Fabrication des Tuyaux en Ciment.* (Standards of the Swiss Association for Testing Materials, for the Manufacture of Cement Pipe.) Gen. Civ. Aug. 31, '29.

Untersuchungen über die Viskosität bituminoser Stoffe und deren gesetzmässige Zusammenhänge.* (Investigations upon the Viscosities of Bituminous Substances and Their Consistency with the Law.) Hoepfner. Tech. Gemein. Serial beginning July 5, '29.

b. Metals

Hoesch-Spundwand aus Kupferstahl als Uferwand.* (Hoesch Copper-Steel Sheet-Piling as Shore Wall.) Reinemann. Z. d. Bauver. July 24, '29.

Das "Armco"-Eisen und seine Verwendung in der Industrie. ("Armco" Iron and Its Use in Industry.) Schw. Bauz. Aug. 24, '29.

c. Preservation and Use of Materials, Painting, Waterproofing

The Deterioration of Materials in Sea Water.* (From Ninth (Interim) Report of Comm. Inst. C. E.) Eng. Aug. 23, '29.

Un Nouveau Procédé de Perfectionnement des Bois. La Bakélisation.* (A New Process in the Perfecting of Wood—Bakelization.) Texier. Soc. Ing. Civ. Fr. Mar., '29.

g. Execution of Works, Specifications

Recording Costs of Construction Work.* P. A. Leitch. Inst. Mun. & Co. Engrs. Aug. 20, '29.

Review of Quantity Survey System. Moritz Kahn. (Paper read before Am. Inst. Quantity Surveyors.) Can. Engr. Aug. 27, '29.

1. Of Masonry
Specifications for Filter Sand. (Nat'l Sand & Gravel Assoc.) Can. Engr. Sept. 3, '29.
2. Of Concrete
Flat Slabs, Reinforced Concrete Columns and Walls and Footings. C. E. Nichols. Bost. Soc. C. E. June, '29.
Concrete Control on the Twelve Precast Segments of the Oakland-Alameda Estuary Subway.* Joseph A. Kitts. Conc. Aug., '29.
Design of a Concrete Mixture.* R. P. V. Marquardsen. Conc. Serial beginning Aug., '29.
How to Build Ribbed Type Reinforced Concrete Floors.* Conc. Aug., '29.
The Canadian Specification for Concrete and Reinforced Concrete. Eng. Aug. 16, '29.
Trains of Portable Conveyors Place Concrete for Large Building.* Eng. N. R. Sept. 12, '29.
4. Of Metal
New Steel Floor Developed for Building Use.* Lee H. Miller. Eng. N. R. Aug. 29, '29.
Berechnung gedrückter Tragwerkstelle mit Rücksicht auf Knickung. Oenorm B 1002, Ausgabe 1929.* (Design of Compressed Supporting Members with Regard to Buckling.) K. Haberkalt. Oest. Ing. Arch. Ver. Aug. 16, '29.
5. Of Reinforced Concrete
The Evolution of Modern Building Regulations for Reinforced Concrete. R. R. Zipprodt. Bost. Soc. C. E. June, '29.

h. Foundations, Bridge Piers, and Abutments

Pump House for Paper Mill at Quebec.* H. L. Trotter. Can. Engr. Sept. 3, '29.
Pneumatic Caissons Sunk 110 Ft. for Vicksburg Bridge.* R. G. Stowell. Eng. N. R. Sept. 12, '29.
Heavy Foundations Built Under an Occupied Basement.* W. T. McIntosh. Eng. N. R. Sept. 19, '29.

k. Tunnels and Tunneling-Shields

The Mersey Tunnel.* Inst. Mun. & Co. Engrs. Aug. 6, '29.
Detour Tunnel Constructed to Reduce Cost of Lining.* Ry. Age Sept. 7, '29.
The New Hoosac Tunnel.* Louis C. Winship. Ry. Age Sept. 7, '29.

D. Highways

a. Location

Typical Sections for California Highways.* Fred Grumm. (From *California Highways and Public Works.*) Public W. Aug., '29.

c. Construction

The New Great Northern Highway, N. S. W.* H. H. Newell. (From paper read before Shires Assoc. Conference.) Comwlth. Engr. July, '29.
Asphalt on Ontario Roads.* Public W. Aug., '29.
Bituminous Penetration Macadam Roads.* A. Barton Hack. Comwlth. Engr. Aug., '29.
The Problem of Inexpensive Low-Type Roads. E. W. James. (From paper read before Asphalt Pav. Conference.) Public W. Aug., '29.
Factors That Control the Quality of Concrete Used in Pavement Construction.* R. B. Gage. (Paper read before Assoc. State Highway Officials of N. Atlantic States.) R. & S. Aug., '29.
Highway Construction in Saskatchewan. H. Ross MacKenzie. (Paper read before Ontario Good Roads Assoc.) R. & S. Aug., '29.
Latest Developments in Asphalt Paving Practice. Hugh W. Skidmore. (Paper read before Michigan Mun. League.) Mun. N. & W. W. Aug., '29.
The Transmountain Highway, Glacier National Park.* W. G. Peters. West. Constr. N. Aug. 10, '29.
Recent Road and Bridge Improvements in Lenarkshire. James Robertson. Inst. Mun. & Co. Engrs. Aug. 20, '29.
Engineering in Caddo Parish, Louisiana.* Eng. N. R. Aug. 29, '29.

d. Maintenance

Expansion Joints in Concrete Roads. Lee S. Trainor. (From paper read before Highway Research Board.) Public W. Aug., '29.

e. Street Cleaning, Dust Prevention, Snow Removal

Neue Strassenreinigungsmaschinen.* (New Street-Cleaning Machines.) G. Erdmann. Ver. deu. Ing. Aug. 24, '29.

f. Tree Planting

Natural Snow Fences.* R. A. Drought. Public W. Aug., '29.

h. Vehicles, Automobiles, Traffic

Street Car and Bus Transportation. Dale J. Graham. Eng. Inst. Can. July, '29.
Aerial Survey of Highway Traffic.* A. N. Johnson. (Paper read before Highway Research Board.) R. & S. Aug., '29.
Highway Development and Its Problems in Indiana. A. H. Hinkle. (Paper read before Purdue Roads School.) R. & S. Aug., '29.
The Road Transport Problem in South Africa.* D. E. Lloyd Davies. (Paper read before British Assoc.) Eng. Aug. 23, '29.
Road Transport in South Africa.* J. D. White. (Paper read before British Assoc.) Eng. Sept. 6, '29.

E. Bridges, Viaducts and Arches

b. Iron and Steel Bridges and Viaducts

The Four Interstate Bridges.* John F. Galvin. Mil. Engr. July–Aug., '29.
Replacing a Suburban Railway Bridge.* Comwlth. Engr. Aug., '29.
Longview-Rainier Interstate Bridge Over Columbia River.* West. Constr. N. Aug. 10, '29.
Suisun Bay Bridge.* West. Constr. N. Aug. 25, '29.
Methods of Erecting Steel Bridges. D. G. Mackintosh. (Paper read before Inst. Struc. Engrs.) Can. Engr. Sept. 3, '29.
The First Arc-Welded Bridge in Europe.* Stefan Bryla. Engr. Sept. 6, '29.
Note sur le Flambement des Arcs Surbaissés.* (Note on the Sagging of Elliptical Arches.) L. Tournayre. Gen. Civ. Aug. 24, '29.
Pont en Arc de 504 Mètres sur le Kill van Kull près de New-York.* (The 504-Meter Arch Bridge over the Kill van Kull, near New York.) P. Caufourier. Gen. Civ. Aug. 31, '29.
Strassenbrücke über die Dammstrecke des Mittellandkanals zwischen Jersleben und Meitzendorf.* (Highway Bridge Over the Embanked Section of the Mittelland Canal Between Jersleben and Meitzendorf.) Schinkel. Z. d. Bauver. July 31, '29.
Entwurf für die Elbbrücke bei Tangermünde.* (Plan for the Elbe Bridge at Tangermünde.) Karl Bernhard. Z. d. Bauver. Aug. 21, '29.
Die neue eiserne Reussbrücke in Mellingen.* (The New Iron Reuss Bridge in Mellingen.) Fr. Bühler. Schw. Bauz. Aug. 24, '29.

d. Concrete and Reinforced Concrete Bridges and Viaducts

Highway Bridge Over Pyke's Creek, Ballan, Victoria.* M. G. Dempster. Comwlth. Engr. July, '29.
Improvements at Frodingham—London and North-Eastern Railway. Engr. Aug. 23, '29.
Measuring Strain and Temperature in a 160-Ft. Concrete Arch Bridge.* Searcy B. Slack. Eng. N. R. Aug. 29, '29.
Full-Scale and Beggs Deformeter Tests on a Reinforced-Concrete Arch Bridge.* Eng. Serial beginning Sept. 6, '29.
Belastungsversuche an der Eisenbeton-Bogenbrücke über die Urnäsch bei Hundwil.* (Loading Experiments on the Reinforced Concrete Arch Bridge Over the Urnäsch at Hundwil.) M. Ros. Schw. Bauz. Aug. 10, '29.

f. Suspension Bridges, Transfer Bridges

Problems of the Engineering Profession. D. B. Steinman. (Paper read before Am. Assoc. Engrs.) Mun. N. & W. W. Aug., '29.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Traveling Cranes

Analysis of Dynamic Stresses in Hackensack Bascule.* C. E. Paine. Eng. N. R. Aug. 29, '29.

h. Computation, Tests, etc.

On the Question of the Investigation into the Static and Dynamic Stresses in Railway Bridges.* Henry Fowler and G. Ellson. Int. Ry. Cong. Assoc. July, '29.

F. Inland Waters

c. Regulation of Waterways, Volumes of Discharge, Freshets, Floods, Soundings

Regulation of Levels, Flow, and Navigation, Niagara River: Summary and Conclusions of Various Studies.* George B. Pillsbury. Am. Soc. C. E. Sept., '29.
Die Staumauer als Hochwasserschutz im Oberlauf der Albigna (Bergell).* (Dam for Flood Protection on the Upper Court of the Albigna, Bergell.) Schw. Bauz. Aug. 17, '29.

d. Diverting Dams, Locks, Lifts, Elevators, Inclined Planes

Die Erhöhung der Assuamdammes.* (Heightening of the Assuan Dam.) Gruner. Oest. Ing. Arch. Ver. Serial beginning Aug. 2, '29.

j. River and Lake Posts, Equipment

Developing a New Port on Hudson Bay.* D. J. Benham. Can. Engr. Aug. 27, '29.

G. Maritime Works

j. Dockyard Machinery and Shopyards, Dry Docks

The Government Dockyard, Newcastle, N. S. W.* Comwlth. Engr. July, '29.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics

a. Railroads

1. General Articles

The Organization of a Suburban Service of the French Eastern Railway (Vincennes Line).* Inst. Ry. Cong. Assoc. July, '29.
Suburban Railway Construction in Victoria.* W. D. Chapman. Comwlth. Engr. July, '29.
Outstanding Feature of the Nice-Coni Railway.* F. C. Livingston. Ry. Age Aug. 24, '29.
A New Transpyrenean Railway.* Engr. Aug. 30, '29.

Les Chemins de Fer Transpyrénéens. Inauguration de la Ligne d'Ax-les-Thermes à Puigcerda.* (The Trans-Pyrenean Railroad. Opening of the Line from Ax-les-Thermes to Puigcerda.) Ch. Dantin. Gen. Civ. Aug. 3, '29.
Les Chemins de Fer de l'Indochine.* (The Railroads of Indo-China.) A. Joitel. Gen. Civ. Aug. 24, '29.

4. Aerodromes and Landing Fields

Slabs Weighing 240 Tons Are Moved on Rollers.* Ry. Eng. & Main. Aug., '29.
The Country's Most Difficult Track Maintenance.* Ry. Eng. & Main. Aug., '29.
Around the World With the Track Man.* Gordon Hearn. Ry. Eng. & Main. Aug., '29.
20 Years of Treated Ties on the Northern Pacific. Andrew Gibson. Ry. Eng. & Main. Aug., '29.
Medium Manganese Steel Makes Higher Grade Rails.* C. B. Bronson. Ry. Age Aug. 31, '29.

5. Signals and Safety Apparatus

Operates Trains by Signal Indication.* G. H. Dryden. Ry. Age Aug. 31, '29.
Power Brake Tests in Siskiyou Mountains.* Ry. Age Aug. 31, '29.
The Mumbles Railway and Its Signalling.* Engr. Aug. 16, '29.
Be Sure to See the Caution Signal.* Ry. Age Sept. 7, '29.

6. Rolling Stock

Santa Fe Railway Power Plant Test Car.* E. E. Chapman. West. Ry. Club Apr., '29.
On the Question of All-Steel Coaches, Comparison With Vehicles Built of Wood.* Lancrenon and Vallancien. Int. Ry. Cong. Assoc. July, '29.
On the Question of Electric Locomotives for Main Line Traction.* J. V. B. Duer. Int. Ry. Cong. Assoc. July, '29.
Rail Motor Cars Effect Economies.* Ry. Age Aug., '29.
Mechanical Engineering Problems of the 3-Ft. 6-in. Gauge South African Railways.* M. M. Loubser. (Paper read before British Assoc.) Eng. Aug. 23, '29.
Canadian National Demonstrates High-Power Oil Locomotive.* Ry. Age Sept. 7, '29.
Neuere Bestrebungen im amerikanischen Lokomotivbau.* (Recent Efforts in American Locomotive Building.) E. Metzeltin. Ver. deu. Ing. Serial beginning Aug. 3, '29.
Die neuere Entwicklung des Lokomotivkessels bei der Deutschen Reichsbahn.* (Recent Locomotive Boiler Development by the German State Railroad.) R. P. Wagner. Ver. deu. Ing. Aug. 31, '29.

7. Uses of Electricity

The Electrification of the Mexican Railway.* J. B. Cox. A. I. E. E. Aug., '29.
Energierückgewinnung und Effektschwankung im elektrischen Bahnbetrieb.* (The Regenerating of Energy and the Fluctuation of Output in Operating Electric Railroads.) W. Kummer. Schw. Bauz. Aug. 17, '29.

8. Stations, Terminals, Engine Houses, Shops

Burlington Modernizes Passenger Stations.* Ry. Eng. & Main. Aug., '29.
Freight Station with Air-Rights Warehouse at Chicago.* Eng. N. R. Aug. 29, '29.
S. P. Improves Supply Train Service.* C. H. Thompson. Ry. Age Aug. 31, '29.
B. & O. Controls Yard Performance.* Ry. Age Sept. 7, '29.
Close Supervision Solves Terminal Problem.* Ry. Age Sept. 14, '29.
What's Wrong with Supply Work and What to do About It.* Ry. Age Sept. 14, '29.
Tall Bridge Pier Construction in an Engine Roundhouse.* Phil. A. Franklin. Eng. N. R. Sept. 19, '29.

9. Technical and Commercial Use

Organization of a Metropolitan Trucking Service.* Ry. Age (Motor Trans. Sec.) Aug. 24, '29.
The Story of the New England Transportation Co.* Ry. Age (Motor Trans. Sec.) Aug. 24, '29.

b. Special Railroads

2. Aerial Railroads

L'Emploi de Transporteurs Funiculaires Aériens pour la Construction du Barrage du Grimsel (Suisse).* (Use of Aerial Funicular Transporters in the Construction of the Grimsel, Switzerland, Dam.) Gen. Civ. Aug. 17, '29.

d. Street Railway, Elevated Railways, Subways

1. General Articles

Die erste Untergrundbahn in Oslo.* (The First Subway in Oslo.) Z. d. Bauver. Aug. 21, '29.

f. Aeronautics

1. General Articles

Civil Aviation in Canada.* J. A. Wilson. Eng. Inst. Can. July, '29.
Linking Rail and Air Transport.* C. E. McCullough. West. Soc. Engrs. Aug., '29.

3. Aeroplanes

Is the Airplane Diesel Practical.* Reginald M. Cleveland. Sci. Am. Sept., '29.
L'Avion Bernard "Oiseau-Canari" et sa Traversee de l'Atlantique les 13–14 juin 1929.* (The Bernard Airplane "Oiseau-Canari" and Its Atlantic Crossing, June 13–14, 1929.) R.–J. de Marolles. Gen. Civ. Aug. 24, '29.

4. Aerodromes and Landing Fields

Designing Airports. Raymond Saal. (Abstract of paper read before Louisiana Eng. Soc.) Public W. Aug., '29.
The Zeppelin's American Home.* Walter E. Burton. Sci. Am. Sept., '29.
Akron Develops an Airport for Planes and Dirigibles.* Eng. N. R. Sept. 12, '29.
All-Metal Hangars at a Cost of $1.10 Per Square Foot.* Eng. N. R. Sept. 19, '29.
Grundsätzliches über Flughafenbau.* (Fundamentals Concerning Airport Construction.) Ernst Dierbach. Ver. deu. Ing. Aug. 10, '29.

I. Municipal Water-Works. Agricultural Engineering. Irrigation

a. General Articles

Forme Rationnelle des Grosses Conduites.* (Rational Shape of Large Conduits.) L. Genevois. Gen. Civ. Aug. 3, '29.

b. Hydrology, Water Resources

Rainfall Phenomena as a Factor in Water Supply for Coastal Plain.* A. L. Sonderegger. (Paper read before U. S. C. Water Course.) Hydraulic Eng. Aug., '29.
Water Supply from Rainfall on Valley Floors.* Discussion: Harold C. Troxell. Am. Soc. C. E. Sept., '29.
Der Abflussvorgang des Regenwassers auf einer geneigten Ebene.* (The Process of Rainwater Run-Off on a Sloping Plane.) Alfred Vitols. Zeit. Bau. July, '29.
Hydrologische Erscheinungen im "ewig gefroren Boden" Sibiriens.* (Hydrological Phenomena in the "Eternally Frozen Earth" of Siberia.) E. Prinz. Gas und Wasser. Aug. 3, '29.
Die Wasserversorgung einer Gemeinde auf der sterilen Muschelkalkhochfläche bei Freyburg a. d. Unstr.* (The Water Supply of a Community on the Sterile Shell Limestone Plateau near Freyburg.) C. Gäbert. Tech. Gemein. Sept. 5, '29.

c. Dams and Reservoirs

Subsidence at Sugarloaf Dam, Victoria.* Comwlth. Engr. Aug., '29.
The Protection of Impounded Reservoirs.* Helman Rosenthal. Am. W. W. Assoc. Aug., '29.
Problems in Handling Large Construction Work by Contract. F. A. Banks. (Paper read before Denver Conference of Officials, U. S. Bureau of Reclamation.) Eng. & Contr. Aug., '29.
Concrete Work at Gibson Dam.* Ralph Lowry. (Paper read before Colorado Section, Am. Soc. C. E.) Eng. & Contr. Aug., '29.
Experiments on Discharge Over Spillways and Models, Keokuk Dam.* Discussion: Ludwig A. Ott. Am. Soc. C. E. Sept., '29.

d. Analysis and Purification of Water

Improvement of Taste of Chlorinated Drinking Water by Use of Activated Charcoal Filters. Karl Imhoff and F. Sierp. Public W. Aug., '29.
Methylene Blue and Brom Cresol Purple in Differentiating Bacteria of the Colon-Aerogenes Group.* John F. Dominick and Carl J. Lauter. Am. W. W. Assoc. Aug., '29.
Preammoniation at Springfield, Illinois.* Charles H. Spaulding. Am. W. W. Assoc. Aug. '29.
Prevention of Pitting in Locomotive Boilers by Exclusion of Dissolved Oxygen from Feedwater. C. H. Koyl. Am. W. W. Assoc. Aug., '29.
Pure Stream Movement Will Accomplish Its Purpose. Scotland G. Highland. Am. W. W. Assoc. Aug., '29.
Recent Developments in Boiler Feed Water Treatment. Sheppard T. Powell. Am. W. W. Assoc. Aug., '29.
Softening Municipal Water Supplies by Zeolite.* J. T. Campbell. Am. W. W. Assoc. Aug., '29.
Ultramiscroscopic Studies of Colloids in Water.* C. H. Christman. Am. W. W. Assoc. Aug., '29.
Filtering Materials for Water and Sewage Works: Progress Report of the Committee of The Sanitary Engineering Division. Discussion: Harry N. Jenks and Almon L. Fales. Am. Soc. C. E. Sept., '29.
Filtering Materials for Water and Sewage Works: Progress Report of the Committee of the Sanitary Engineering Division.* Am. Soc. C. E. Sept., '29.
Weitere Beiträge zur Differenzierung der organischen Stoffe im Wasser. Das Chlorbindungsvermögen von Grundwässern.* (Further Contributions to the Differentiation of the Organic Substances in Water. The Chlorine Combining Ability of Ground Waters.) K. Keiser. Tech. Gemein. Serial beginning July 5, '29.
Inkrustierung von Brunnen und deren Beseitigung auf chemischem Wege.* (Incrustations in Wells and Their Removal by Chemical Processes.) G. Wiegand. Gas und Wasser. July 27, '29.
Zwei Gesetze der Trinkwasserreinigung.* (Two Laws of Drinking Water Purification.) N. Malischewski. Gesund. Ing. Aug. 10, '29.

e. Distribution of Water

Water Supply Plant at Bairnsdale, Victoria.* Comwlth. Engr. Aug., '29.
Long Distance Water Transmission Involves Daring Engineering Problems.* M. M. O'Shaughnessy. (Paper read before U. S. C. Short Course.) Hydraulic Eng. Aug., '29.
Pitot Tube in Water Works Practice.* G. D. Conlee. Am. W. W. Assoc. Aug., '29.
Materials for Cast Iron Pipe Joints. W. C. Mabee. Am. W. W. Assoc. Aug., '29.
Elevated Tanks for Water Works Systems. George T. Horton. Am. W. W. Assoc. Aug., '29.
Irrigation in the Union of South Africa. J. C. Hawkins. (Paper read before British Assoc.) Eng. Aug. 30, '29.
Report of the Committee of the Irrigation Division on "A National Reclamation Policy". Discussion: Frank Adams, M. J. Dowd, C. E. Grunsky, S. T. Harding, and H. H. Dare. Am. Soc. C. E. Sept., '29.
Experiments to Determine Rate of Evaporation from Saturated Soils and River-Bed Sands. Discussion: Samuel Fortier, A. L. Sonderegger, and Harry F. Blaney. Am. Soc. C. E. Sept., '29.
Some Hydrautomat Development.* Engr. Sept. 6, '29.
Steel Used for Large Water Mains in New York City.* William W. Brush. Eng. N. R. Sept. 12, '29.
British Water-Pipe Practice and Experience.* M. N. Baker. Eng. N. R. Sept. 12, '29.
Cast Iron, Steel or Reinforced Concrete.* Caleb Mills Saville. Eng. N. R. Sept. 12, '29.
Experiences in Cleaning Seven Miles of 16-in. Cast-Iron Water Main.* Arthur T. Clark. Eng. N. R. Sept. 12, '29.
Technisch-wirtschaftliche Untersuchungen über die Verwendung automatischer Pumpwerke ohne Hochbehälter für kommunale Wasserversorgungen.* (Technico-Economic Investigations on the Use of Automatic Pumping Plants without Water Towers for Municipal Water Supplies.) Segelken. Gas und Wasser. Aug. 10, '29.
Rohre aus Eternit.* (Eternit Pipe.) Fritz Emperger. Oest. Ing. Arch. Ver. Aug. 30, '29.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

Erfahrungen beim Bau von Abwasserdückern.* (Experiences While Building Sewage Siphons.) Hans Rossberg. Gesund. Ing. July 27, '29.

Vereinfachtes Verfahren zur Berechnung der Kanalprofile.* (Simplified Method for Calculating Sewer Cross-Sections.) Ottomar Schmiedel. Gesund. Ing. Aug. 3, '29.

Die Vorflut der Stadt Hanau am Main als Grundlage der Systemwahl und Entwicklung der Stadtentwässerung. (The Rise of the Floods at the City of Hanau am Main as the Basis for the Choice of the System and the Development of the Municipal Drainage.) Scheffel. Tech. Gemein. Sept. 5, '29.

b. Sewage Disposal, Purification

Some Examples of Pollution of Streams by Industrial Wastes. Robert Spurr Weston. Bost. Soc. C. E. June, '29.

Country Town Sewerage.* A. Gordon Gutteridge. (From paper read before I. E. Aust.) Comwlth. Engr. July, '29.

The East Side Sewage Treatment Plant of the City of Topeka, Kan. Charles A. Haskins. (Paper read before Missouri Water & Sewerage Conference.) Mun. & N. & W. W. Aug., '29.

Sewerage Improvements in Nantucket. Public W. Aug., '29.

Lawton's Activated Sludge Plant.* Webster L. Benham. (Paper read before Fifth Okla. W. W. Short Course.) Public W. Aug., '29.

Imhof Tank Operation.* L. H. Gadsby. West. Constr. N. Aug. 10, '29.

A Removal.* Thomas M. Stephen. Inst. Mun. & Co. Engrs. Aug. 20, '29.

Additions to Mechanical Equipment at Baltimore Sewage-Pumping Station.* C. E. Kemper. Eng. N. R. Aug. 29, '29.

Filtering Materials for Water and Sewage Works; Progress Report of the Committee of the Sanitary Engineering Division. Discussion: Harry N. Jenks and Almon L. Fales. Am. Soc. C. E. Sept., '29.

Filtering Materials for Water and Sewage Works: Progress Report of the Committee of the Sanitary Engineering Division.* Am. Soc. C. E. Sept., '29.

Friction of Sewage Sludge in Pipes: Progress Report of Committee of the Sanitary Engineering Division.* Am. Soc. C. E. Sept., '29.

Pre-Determining the Extent of a Sewage Field in Sea Water.* Discussion: George W. Fuller, Kenneth Allen, and R. F. Goudey. Am. Soc. C. E., Sept., '29.

Pulverizing of Sewage Screenings at Baltimore, Maryland.* C. E. Keefer. Am. Soc. C. E. Sept., '29.

Die zulässige Belastung eines Gewässers durch Stadtentwässerungen.* (The Permissible Burdening of a Stream by Municipal Drainage.) Mahr. Tech. Gemein. Serial beginning Aug. 5, '29.

Zur Frage des Phenolabwassers.* (On the Problem of Phenol Sewage.) Max Prüss. Gas und Wasser. Aug. 10, '29.

Fortschritte bei der Abwasserreinigung. Kläranlage der Stadt Singen.* (Progress in Sewage Purification. Clarifying Plant of the City of Singen.) Karl Haller. Z. d. Bauver. Aug. 14, '29.

Fehlerquellen bei der Bestimmung der organischen Substanz im Abwasser nach Kubel-Tiemann.* (Sources of Error in the Determination of the Organic Matter in Sewage by the Kubel-Tiemann Method.) Friedrich Reinhold. Tech. Gemein. Aug. 20, '29.

c. Refuse Disposal

Glasgow's 720-Ton Refuse Incinerator.* M. N. Baker. Eng. N. R. Aug. 29, '29.

L'Usine de Traitement des Ordures Ménagères de la Ville de Paris, à Issy-les-Molineaux.* (Garbage Reduction Plant of the City of Paris, at Issy-les-Molineaux.) Maurice Bricard. Gen. Civ. Aug. 10, '29.

Verbilligung der Schlammabfuhr aus den Strassensinkkästen in Halle.* (Cheapening the Removal of Sludge from the Street Catchbasins at Halle.) Wilhelm J. Müller. Gesund. Ing. Aug. 17, '29.

K. Heat Engines

a. Steam Engines, Boilers

Versuche über den Wasserumlauf in Dampfkesseln.* (Investigations of the Circulation of Water in Steam Boilers.) Ernst Schmidt. Ver. deu. Ing. Aug. 17, '29.

b. Steam Turbines

Recent Progress in Steam-Turbine Plant.* (Paper read before British Assoc.) Eng. Aug. 16, '29.

c. Gas and Oil Engines

Characteristics of Centrifugal Oil Pump. Discussion: Michael D. Aisenstein. Am. Soc. C. E. Sept., '29.

Oil Engine Research at the University of Toronto.* Campbell Bradshaw. Power Sept. 3, '29.

L. Electricity

b. Distribution and Transmission of Electricity

Population as an Index to Electrical Development.* N. B. Hinson. A. I. E. E. Aug., '29.

"Synchronized at the Load": A Symposium on New York City 60-Cycle Power System Connections.* A. H. Kehoe and Others. A. I. E. E. Aug., '29.

1. Power Plants
Der Bau des Kraftwerks Kearny bei Newark.* (Construction of the Kearny Power Plant near Newark.) H. Griesel. Ver. deu. Ing. Aug. 10, '29.
2. Long Distance Transmission of Energy
The Operation of a Power Transmission System. G. A. Vandevoort. Eng. Inst. Can. July, '29.
The Gatineau-Toronto Electric Transmission Line Terminal Station.* Engr. Serial beginning Aug. 23, '29.
5. Transformers and Converters
Safe Loading of Oil-Immersed Transformers.* E. T. Norris. A. I. E. E. Aug., '29.

c. Electric Lighting

2. Uses
Modern Lighting Practice in Europe. S. E. Doane. West. Soc. Engrs. Aug., '29.

d. Mechanical Uses of Electricity

3. Welding
Arc Welding in Structural Fabrication.* A. S. Wall. Eng. Inst. Can. July, '29.

f. Signals and Communication

Telephone Transmission Networks. T. E. Shea and C. E. Lane. A. I. E. E. Aug., '29.

x. Miscellaneous

La Production et la Distribution de l'Energie Electrique aux Etats-Unis.* (Production and Distribution of Electrical Energy in the United States.) G. Dreyfus. Soc. Ing. Civ. Fr. Mar., '29.

M. Architecture

a. Educational, Government and Scientific Buildings

Polizeibauten.* (Police Buildings.) Dammeier. Zeit. Bau. Serial beginning July, '29.
Die Internationale Ausstellung in Barcelona.* (The Barcelona International Exposition.) Walther Genzmer. Z. d. Bauver. Aug. 21, '29.

b. Business and Commercial Buildings

Die Grossmarkthalle Frankfurt a. M.* (The Great Market Hall at Frankfurt a. M.) Fr. Dischinger and U. Finsterwalder. Ver. deu. Ing. Aug. 17, '29.

c. Residences, Hotels

Grossstädtische Kleinwohnungen.* (Small Dwellings for Large Cities.) Ludwig Hilberseimer. Z. d. Bauver. Aug. 7, '29.

d. Storage Buildings

New Saskatchewan Pool Elevator No. 7.* D. V. Whitehead. Can. Engr. Sept. 10, '29.
New Spheroidal Design for Large Oil Tanks.* C. L. Day. Eng. N. R. Sept. 12, '29.
Der Ingenieur-Hochbau des Warenhauses Karstadt am Hermannplatz in Berlin Neukölln.* (The Engineering Features in the Construction of the Karstadt Warehouse on Hermannplatz in Berlin-Neukölln). Herbst. Z. d. Bauver. Aug. 21, '29.

f. Factories and Mill Buildings

Tabakfabrik Rottendam.* (Rotterdam Tobacco Factory.) Z. d. Bauver. July 31, '29.

g. Other Buildings

La Technique des Abbatoirs Modernes.* (The Technique of Modern Abbatoirs.) D. Schwertzler. Soc. Ing. Civ. Fr. Mar., '29.
Schwimmbad in Frankfurt a. Main-Fechenheim.* (Swimming Pool in Frankfurt a. Main-Fechenheim.) Z. d. Bauver. Aug. 14, '29.

h. Roofs, Domes

Neuzeitliche Flachdach-Konstruktionen.* (Modern Flat Roof Construction.) Nosbisch. Schw. Bauz. Aug. 24, '29.

l. Fire Protection

The Relation Between Earthquakes and Engineering Substructures. Discussion: Henry D. Dewell. Am. Soc. C. E. Sept., '29.

O. Administration. Legislation. Economics. Statistics

b. Economic Questions of a General Character, Valuations

Many Economic Problems Involved in Proposed Changes in Public Land Policy.* Kendall K. Hoyt. Eng. N. R. Sept. 12, '29.

d. Administrative and Financial Management of Means of Communication

2. Routes and Roads
On the Question of the Cooperation of the Staff Towards Increased Efficiency and Its Participating in the Profits. C. C. Cook. Int. Ry. Eng. Cong. July, '29.

The Highway as Part of Our National Transportation System. H. E. Riggs. (Paper read before Univ. of Michigan.) R. & S. Aug., '29.

3. Inland Navigation

Returns and Toll Rates of the Panama Canal.* Harry Burgess. Mil. Engr. July–Aug., '29.

4. Maritime Ports

On the Question of the Relations Between Railways and Sea Ports.* Edilio Ehrenfreund Ludovico Belmonte. Int. Ry. Eng. Cong. July, '29.

5. Railroads and Street Railways

The Railroads and Engineering. Earl Stimson. Engrs. & Eng. Serial beginning Sept., '29.

g. Engineering Education

University Training in Structural Design and Practice. A. E. Snape. (Paper read before British Assoc.) Eng. Aug. 30, '29.

Engineering and Engineering Education. Anson Marston. Am. Soc. C. E. Sept., '29.

Q. Surveying and Geodesy

The Geodetic Survey of Canada.* Noel J. Ogilvie. Mil. Engr. July–Aug., '29.

Boundary, Topographic, Location and Construction, and Control Surveys: Progress Reports of the Committees of the Surveying and Mapping Division. Discussion: Edward B. Hill, C. O. Sherrill, Henry J. Sherman, Wallace H. Halsey, J. K. Finch, R. H. Randall, Charles B. Stanton, Carroll F. Merriam, Warren C. Taylor, M. W. Weir, and Paul H. Underwood. Am. Soc. C. E. Sept., '29.

Good Maps Are a Sound Investment. Discussion: E. K. Smith, D. L. Reaburn, Francois E. Matthes, W. E. Parker, Hugh C. Mitchell, and Dr. Helen M. Strong. Am. Soc. C. E. Sept., '29.

The Surveying and Mapping Activities of the Federal Government. Discussion: William Bowie, William O. Tufts, Henry J. Sherman, Rufus H. Sargent, and Arthur H. Kidder. Am. Soc. C. E. Sept., '29.

S. City Planning

Use of Roofs and Terraces for Recreation.* Harry B. Brainerd. City Plan. July, '29.

Use of Police Power in City Planning and Zoning. Edward D. Landels. City Plan, July, '29.

Planning Progress in Saint Louis.* Harland Bartholomew. City Plan. July, '29.

Regional Planning: Some Executive Difficulties. Herbert H. Humphries. Inst. Mun. & Co. Engrs. Aug. 6, '29.

Controlling the Subdivision of Land.* Stewart Young. (Paper read before Town Plan. Inst. Can.) Can. Engr. Aug. 20, '29.

Translating Theory Into Practice in Regional Engineering.* Jay Downer and James Owen. Eng. N. R. Sept. 19, '29.

Engineering Societies Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers. A Chicago office is maintained in co-operation with the Western Society of Engineers, and a San Francisco office, in co-operation with the Engineers' Club of San Francisco and the California Section of the American Chemical Society. The Service is available only to the several memberships and is maintained by contributions from the Societies and their individual members who are directly benefited.

Offices.—Eastern Office, 31 West 39th Street, New York, N. Y., Walter V. Brown, Manager; Chicago Office, 205 West Wacker Drive, 1216 Engineering Building, Chicago, Ill., A. Krauser, Manager; and San Francisco Office, 57 Post Street, Room 715, San Francisco, Calif., Newton D. Cook, Manager.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Notices for *Proceedings* should be addressed to Employment Service, 31 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and may be obtained by members of the Societies concerned at a subscription rate of $3 per quarter, or $10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Placement Fees.—The Service is operated on a co-operative basis, whereby those benefiting contribute in accordance with the following rates: One and one-half per cent. of the first year's salary for permanent positions. Temporary positions, six months or less, 3% of the total salary received, payable monthly.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with two two-cent stamps attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Service after the positions to which they refer have been filled, will not be forwarded.

POSITIONS AVAILABLE

CIVIL ENGINEER, for sales engineering and promotional work in concrete products and general concrete field. Chance to obtain wide experience in this field. Apply by letter giving age, education, experience, and salary expected. Location, Pennsylvania. X–9463.

MEN AVAILABLE

CIVIL AND MUNICIPAL ENGINEER. M. Am. Soc. C. E.; Cornell graduate; age 45; married. Ten years' heavy aqueduct and subway construction; nine years, city engineer and engineer-manager in responsible charge of all engineering and municipal work of suburban communities. Desires position with municipality, development company, or consulting engineer. A–717.

CIVIL AND SANITARY ENGINEER, M. Am. Soc. C. E.; married. Extensive experience in engineering design, construction, railroad, street railway, irrigation, highways, harbor improvements, sewerage, sewage disposal, water supply, and hydro-electric developments. Employed in various capacities, from draftsman to chief engineer, projects costing $500 000 to $20 000 000. Good knowledge of Spanish. Atlantic, Pacific Coast, or Spanish-speaking countries. B–1550.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 24. Three years' general experience in construction department of oil company, office and field. Land surveys,

camp and plant layouts, etc. Good mechanical draftsman and letterer. Desires change offering further experience and growth. B–3800.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; college graduate. Twenty-six years' experience; ten years, concrete construction; railroads, ten years, location and construction; Chicago traction, four years, track rehabilitation, tunnel reconstruction; hydro-electric, four years, dam developments; valuation, two years, railroads, public utilities; private practice, three years, land surveying, city additions; municipal, three years, water, sewers, street pavements. B–5228.

EXPERIENCED DESIGNER of Hydro-Electric Plants, Assoc. M. Am. Soc. C. E. Twenty years' experience in the planning, design, and detailing of water power structures. Established qualifications as squad leader or office engineer. Available January, 1930. B–5750.

CIVIL OR EXECUTIVE ENGINEER, M. Am. Soc. C. E.; age 50. Sixteen years' experience as City Engineer and Commissioner of Public Works for cities of 80 000 population; seven years in other municipal work; four years, teaching; desires position in teaching or municipal work in vicinity of Philadelphia, Pa. B–7033.

LICENSED PROFESSIONAL ENGINEER, Assoc. M. Am. Soc. C. E.; age 49. Twenty-five years' experience in railway, highway, municipal, harbor and industrial engineering, exploration, boundary and property surveying. Mostly in foreign countries. Speaks Danish and has working knowledge of Spanish. Available on short notice to take charge of work or for investigations and reports. B–8567.

CHEMICAL ENGINEER, Assoc. M. Am. Soc. C. E. Has had wide experience in concrete construction and in use of cement. Was in charge of the concrete laboratory of a prominent engineering concern. Has had research experience in cement. At present employed as a research chemist. C–943.

CIVIL ENGINEER, M. Am. Soc. C. E. Twenty-five years' experience, design, construction, supervision, as engineer, contractor's superintendent, and contractor; pavements, water, sewers, drainage and flood control, irrigation, hydro-electric, bridges and structures, concrete. Desires connection with consulting engineer, contractor, city, public utility, industrial corporation. Go any place. Report short notice. C–1756-8-A-1.

CIVIL ENGINEER, M. Am. Soc. C. E., with experience as one of chief engineering officers of a transcontinental railroad, as manager of a short line railroad, as assistant superintendent of a main-line division, and with training in the bridge engineer's office and in the field on location, construction, and maintenance, desires to make a connection. C–2263.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 31; with six years of mainly field experience in railroading and steam and hydro-electric power, is looking for connection with consulting engineer or contractor, handling extensive hydraulic projects, domestic and foreign. C–2431.

CIVIL ENGINEER, recent graduate of Cornell University majoring in structural engineering; age 25; single; desires employment with a construction firm, either as an estimator or designer in concrete or steel. C–5110.

CIVIL ENGINEER, M. Am. Soc. C. E.; age 54; organizer and executive. Successful record on new and difficult construction works here and abroad. Knows construction equipment, use, and methods, and adaptability to new conditions. More than twenty years' responsible design. Available now. C–5132.

CIVIL AND HYDRO-ELECTRIC ENGINEER, M. Am. Soc. C. E.; age 37. Extensive experience, hydro-electric developments, steam power-plants, hydraulic structures, etc. Late engagement as chief engineer, large hydro-electric development, on design and construction. Capable executive wants responsible position. C–6336.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; age 36; married; technical training. Thirteen years' broad experience, structural design, railway location, construction, hydro-electric installation. Last six years, mining company, investigating, initiating mine projects, United States, Latin-America. Speaks Spanish and French. Specially qualified as investigator of industrial, mining enterprises, executive, assistant executive, United States or Latin-America. C–6413-99-A-1. San Francisco.

ENGINEER, Assoc. M. Am. Soc. C. E., civil and mechanical, with wide experience in each line, wishes to hear from parties who may need such services; special lines are power-plant building and operation, concrete foundations and structures, paving, etc. Available in one month. C–6429.

STRUCTURAL ENGINEER, Jun. Am. Soc. C. E.; age 31; Graduate, Mass. Inst. Tech.; Registered Civil Engineer (Michigan). Three years, structural design and construction; three years, accounting and selling; three years, sewers, highways, surveys. Now employed on location surveys. Desires permanent location in Southwest. Opportunity is of more moment than immediate large return. C–6447.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 28; single; Cornell. Six years' experience, hydraulic engineering, irrigation; dams, water supply, drainage, river improvement, port development; investigations, design and construction; reports. Two years, foreign railway location. Location, United States or foreign. C–6458.

HIGHWAY ENGINEER, M. Am. Soc. C. E.; age 38; married. Eighteen years' experience; nine years, highway engineering in South; past four years, County Engineer in charge of $4 000 000 paving program; five years, division engineer and construction engineer State highway department. Early experience, railroad construction. Available, January 1, 1930. Excellent references. C–6474.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; graduate; age 36. Fifteen years' varied engineering experience; eight years, pre-

cise surveys, triangulation, topography, etc.; two years, highway location and construction; two years, municipal and county work; three years, responsible teaching. Desires responsible position on highway, municipal, or county work. Will also consider sales or teaching. C–6463.

GRADUATE CIVIL ENGINEER, Jun. Am. Soc. C. E.; age 28; married. Master's degree, Mass. Inst. Tech. Two years' experience, bar company; two years on promotion of concrete structures. Now has permanent position, but is seeking one that has better possibilities. C–6499.

SANITARY ENGINEER, Jun. Am. Soc. C. E.; age 27; single; college graduate. One and one-half years in charge of purification for a water company. C–5050.

Membership

(From September 4 to October 8, 1929)

Additions

		Date of Membership.
HONORARY MEMBERS		
FURUICHI, Baron Koi. Yumi-Cho, Hongo, Tokyo, Japan	Hon. M.	July 8, 1929
MEMBERS		
ALTHOF, Lansing Wheeler. Engr., M. of W. and Structures, Oregon Short Line R. R., Pocatello, Idaho	M.	Aug. 26, 1929
ANDERSEN, Paul. 602 West 137th St., New York, N. Y.	Jun. Assoc. M.	June 1, 1925 June 10, 1929
ANDERSON, Arthur Job. 845 Pleasant St., Oak Park, Ill.	Jun.	July 15, 1929
ARNKVERN, Rolf Andreas. Structural Designer and Draftsman, United Engrs. & Constructors, Inc. (Res., 440 Queen Lane, Germantown), Philadelphia, Pa.	Jun.	Aug. 26, 1929
BARNES, John Gordon. Asst. to Univ. Engr., Dept. of Grounds and Bldgs., Eng. Div., Univ. of California (Res., 1520 Holly St.), Berkeley, Calif.	Assoc. M.	May 13, 1929
BINNIE, William James Eames. Cons. Engr. (Sir Alex. Binnie Son & Deacon), 30 Buckingham Gate, Westminster, S. W. 1, London, England	M.	Aug. 26, 1929
BLUE, Walter Anthony. 520 Harding St., Detroit, Mich.	Assoc. M.	June 10, 1929
BRIGGS, Robert Webb. Contr. (R. W. Briggs & Co.), Pharr, Tex.	Assoc. M.	Aug. 26, 1929
BROWN, Arthur Robert. Care, Anglo-Chilean Consolidated Nitrate Corporation, 120 Broadway, New York, N. Y.	M.	Aug. 26, 1929
BROWN, Joseph Taylor. With State Highway Dept., Box 696, Seymour, Tex.	Jun.	July 15, 1929
CHRISTOPHER, Willis Clinton. Designing Engr., City of Los Angeles, Los Angeles (Res., 129 South Maple Ave., Montebello), Calif.	Assoc. M.	Aug. 26, 1929
COBB, William Clair. Care, U. S. Engrs., 1006 McCall Bldg., Memphis, Tenn.	Assoc. M.	Mar. 11, 1929
COOLIDGE, Warren Algernon. Asst. Prof., Civ. Eng., Vanderbilt Univ., College Hall, Vanderbilt Campus, Nashville, Tenn.	Assoc. M.	May 13, 1929
CORREALE, William Herbert. Asst. Engr., Parsons, Klapp, Brinckerhoff & Douglas, 84 Pine St. (Res., 840 Mott Ave.), New York, N. Y.	Jun. Assoc. M.	Mar. 16, 1925 June 10, 1929
CRAMER, William Aurelius Wrenn. Design Draftsman, Public Works Dept., Hampton Roads Naval Operating Base (Res., 1553 Lea View Ave.), Norfolk, Va.	Jun.	June 10, 1929
CROSETTO, Edward Francis. Asst. Engr. of Constr., State Dept. of Highways (Res., 814 Columbia St.), Scranton, Pa.	Assoc. M.	Aug. 26, 1929
CUMMINGS, Harold Neff. Prof., Civ. Eng., Newark Coll. of Eng., Newark (Res., 30 Lloyd Pl., Belleville), N. J.	Assoc. M.	June 10, 1929
DEWALD, Francis Robert. Insp., Marc Eidlitz & Son, Inc., New York, N. Y. (Res., 34 Carolin Rd., Montclair, N. J.)	Jun.	April 15, 1929
DIAZ SEGURA, Miguel Antonio. Carrera 3a, No. 152-E, Bogota, Colombia	Jun.	Mar. 11, 1929
DRURY, Clair Fred. Archt. and Promoter (Drury-Moseley Co.), 325 Perrine Bldg., Oklahoma City, Okla.	Assoc. M.	July 15, 1929
ERSKINE, Alexander Madison. Res. Engr., The Terrell Bartlett Engrs., Inc., Box 266, Kaufman, Tex.	Jun. Assoc. M.	Nov. 14, 1927 Aug. 26, 1929
EVELAND, Arthur John. Care, Dwight P. Robinson de la Argentine, S. A., Estacion Fed Lacroze, Buenos Aires, Argentine Republic	Assoc. M.	July 15, 1929
FAVA, Robert Hugh. Supt. of Constr., Fatzler Const. Co., Inc. (Res., 220 South 7th St.), Newark, N. J.	Jun.	Aug. 26, 1929
FAWCETT, Philip Norrison. Engr.-in-Chf., Lower Liao River Conservancy, Newchwang, Manchuria, North China	Assoc. M. M.	Sept. 12, 1916 April 22, 1929
FEINEN, Herbert Joseph. Asst. Supt. of Constr., Dennis Mullins, Inc. (Res., 73 Hague St.), Jersey City, N. J.	Jun.	April 15, 1929
FIALA, Anthony. Care, Fiala Outfits, Inc., 25 Warren St., New York, N. Y.	Affiliate	Aug. 26, 1929
FINKBEINER, Carleton See. Associate Engr., George Champe, 710 Security Bank Bldg., Toledo, Ohio	Assoc. M.	Aug. 26, 1929
GAUTHIER, Paul Gilles. Cost. Engr., Alcoa Power Co., Box 487, Kenogami, Que., Canada	Jun. Assoc. M.	Jan. 14, 1924 June 10, 1929
GROESCHEL, Edward Joseph. Junior Engr., State Highway Dept. (Res., 715 Ave. C), Bayonne, N. J.	Jun.	Aug. 26, 1929
HABERSHON, Matthew Edmund. Civ. Eng. Asst., Borough Engr.'s Dept., Main Drainage Scheme, Guildhall, Swansea, Wales (Res., Ferham Villa, Rotherham (Yorkshire), England)	Jun. Assoc. M.	Dec. 14, 1925 Aug. 26, 1929

MEMBERS—(*Continued*)		Date of Membership.
HAMMOND, John Jacob. Associate Engr., U. S. Bureau of Reclamation (Res., 319 South Logan St.), Denver, Colo.	Assoc. M.	July 15, 1929
HARVEY, Eugene Cochrane. Asst. Chf. Structural Engr., Bridge Dept., City of Los Angeles, Los Angeles (Res., 236 North Bradbury, San Gabriel), Calif.	Assoc. M.	June 10, 1929
HURD, Harold Waller. Office Engr., State Highway Dept., 118 North Richmond, Albuquerque, N. Mex.	Jun. Assoc. M.	Mar. 14, 1927 June 10, 1929
INGRAM, Lon Cartwright, Jr. Newcastle, Tex.	Jun.	July 15, 1929
LALONDE, William Salem, Jr. 522 North Maple Ave., East Orange, N. J.	Jun. Assoc. M.	Oct. 12, 1925 Aug. 26, 1929
LEFTWICH, Robert Francis. Concrete Engr., Raymond Concrete Pile Co., 140 Cedar St., New York, N. Y.	Assoc. M.	July 15, 1929
LYONS, William Theodore. Supt. of Constr., Delta Constr. Co. (Res., 3671 Broadway), New York, N. Y.	Jun.	June 10, 1929
MACDONALD, Edmund Leslie. Res. Engr., East Bay Municipal Utility Dist., Camp Pardee, Valley Springs, Calif.	Assoc. M.	Aug. 26, 1929
MASSEY, George Hubard. Cons. Engr., 600 Dickson Bldg., Norfolk, Va.	M.	Aug. 26, 1929
MOORE, John Henry. 1877 Summit St., Toledo, Ohio	Jun.	Mar. 11, 1929
MURROW, Lacey Van Buren. Res. Engr., State Highway Dept., 504 Maynard Bldg., Seattle, Wash.	Assoc. M.	Aug. 26, 1929
NASON, Walton Hooker. Builder and Engr. (Nason & Cullen), 69 East Lancaster Ave., Ardmore, Pa.	Assoc. M.	Aug. 26, 1929
PHILLIPS, Rolland Winfield. Asst. to J. B. Dannenbaum (Res., 2309 Rosewood Ave.), Houston, Tex.	Jun.	June 10, 1929
REYNOLDS, Kenneth Cass. Asst. Prof., Hydraulics, Dept. of Civ. and San. Eng., Mass. Inst. Tech., Cambridge A, Mass.	Jun. Assoc. M.	Mar. 15, 1926 April 15, 1929
RIVKIN, Bernard Morris. Estimator, Coverdale & Colpitts (Res., 452 Riverside Drive, Apartment 1), New York, N. Y.	Assoc. M.	Aug. 26, 1929
SALAGE, David. 67 Eighty-third St., Jackson Heights, N. Y.	Jun.	July 15, 1929
SANDIFER, Douglas Albert Neville. Lecturer, Machine Design, Mech. Eng. Dept., The University (Res., 22 Littleover Ave., Hall Green), Birmingham, England	Assoc. M.	Aug. 26, 1929
SCAIFE, William McCaslan. Junior Hydrographic and Geodetic Engr., U. S. Coast and Geodetic Survey, 202 Burke Bldg., Seattle, Wash.	Assoc. M.	May 13, 1929
SCHEMAN, Carl Henry. Vice-Pres. and Managing Director, Horton Steel Works, Ltd., Bridgeburg, Ont., Canada (Res., 104 Knowlton Ave., Buffalo, N. Y.)	M.	June 10, 1929
SEIFERT, Harry Emerson. With White Constr. Co., 95 Madison Ave., New York (Res., 160-10 Sanford Ave., Flushing), N. Y.	Jun.	May 13, 1929
SHAPARD, William Allen, Jr. Care, U. S. Engr. Office, Duluth, Minn.	Jun. Assoc. M.	Aug. 4, 1924 Aug. 26, 1929
SHAW, Forbes Dunbar. Instrumentman, Turner Constr. Co., New York (Res., 441 Ocean Ave., Brooklyn), N. Y.	Jun.	Mar. 11, 1929
SHAW, Joseph. Associate of Fred H. Tibbetts, 1320 Alaska Commercial Bldg., San Francisco, Calif.	Jun.	May 13, 1929
STAYNER, Dudley Sutherland. 1011 Ocean Ave., Brooklyn, N. Y.	Assoc. M.	June 10, 1929
STOLL, Jay Hostetter. Appraisal Engr., Gannett, Seelye & Fleming Eng., Inc. (Res., 918 North 18th St.), Harrisburg, Pa.	Assoc. M.	Aug. 26, 1929
WASHBOURNE, John Lyttleton. Asst. to Chf. Engr., F. L. Cranford-C. H. Locher, Inc., 36-36 Storm St., Bayside, N. Y.	Jun.	Aug. 26, 1929
WEINRIB, Jacob Jay. Civ. Engr., Pan Am. Petroleum & Transport Co., 122 East 42d St., New York (Res., 119-34 One Hundred and Eightieth St., St. Albans), N. Y.	Jun. Assoc. M.	Mar. 14, 1927 Aug. 26, 1929
WICK, William Henry. Potlatch Route, Shelton, Wash.	Assoc. M.	Aug. 26, 1929
WILLIAMS, Tudor Rosser. Structural Engr., 522 Scranton Life Bldg., Scranton, Pa.	Assoc. M.	Aug. 26, 1929
WOLF, Fred Henry. Hydr. Engr., Trojan Eng. Corporation, 40 Exchange Pl., New York, N. Y. (Res., 82 West Hazelwood Ave., Rahway), N. J.	Assoc. M.	Aug. 26, 1929
WOODROUGH, Kendal Aldrich. Res. Engr., J. R. Worcester & Co., Boston (Res., 50 Bellamy St., Brighton), Mass.	Assoc. M.	Aug. 26, 1929
WYANT, Carl. Res. Engr. and Gen. Mgr., Montecito County Water Dist. (Res., 141 San Ysidro Rd.), Santa Barbara, Calif.	M.	Aug. 26, 1929
YUNKER, George William. Care, Jackson & Moreland, Park Sq. Bldg., Boston (Res., 42 Albion St., Melrose Highlands), Mass.	Assoc. M.	Aug. 26, 1929

Reinstatements

MEMBERS	Date of Reinstatement.
BULL, George Mairs	Sept. 18, 1929
DONAGHEY, John Thomas	Sept. 9, 1929

Members—(*Continued*)	Date of Reinstatement
FEELEY, William Patrick	Sept. 9, 1929
HULL, William Henry	Sept. 20, 1929
SAVILLE, Allen Jeter	Sept. 10, 1929
SEELYE, Elwyn Eggleston	Sept. 20, 1929
Associate Members	
BEAUVAIS, Philip Henry	Sept. 9, 1929
BLUCHER, Conrad Meuly	Oct. 3, 1929
FISK, George Farnsworth	Sept. 11, 1929
KRIEGER, Albert August	Sept. 11, 1929
MARSH, Charles Reed	Sept. 9, 1929
OLSEN, Ole Kjeld	Sept. 16, 1929
PETERSEN, George Walter	Sept. 10, 1929
PULLAR, William Murray	Oct. 4, 1929
SMALL, Gilbert	Sept. 27, 1929
STOTT, Samuel Edwin	Sept. 13, 1929
WEBER, Alvin Henry	Sept. 20, 1929
WILLIAMS, William Guy	Sept. 26, 1929

Resignations

Members	Date of Resignation.
BARNETT, Robert Crary	Sept. 18, 1929
WEAKLAND, Francis Lee	Sept. 26, 1929
WILLIAMS, Francis Charles	Sept. 18, 1929
Associate Members	
COOMBS, Arthur Wellesley	Oct. 3, 1929
MONROE, Merrick Atherton	Oct. 3, 1929
PETERSON, Edmund Nikolai	Oct. 3, 1929

Deaths

AXTELL, Frank Foy. Elected Associate Member, June 6, 1911; Member, November 26, 1918; died August 14, 1929.

BOUCHER, William James. (*Assistant-Treasurer.*) Elected Associate Member, September 6, 1905; Member, December 6, 1920; died September 14, 1929.

CARPENTER, Charles Lincoln. Elected Member, December 6, 1905; died September 28, 1929.

CHIPMAN, Willis. Elected Member, June 6, 1888; died January 3, 1929.

FLETCHER, Lewis Irving. Elected Affiliate, February 6, 1912; died August 12, 1929.

HODGES, Harry Foote. Elected Member, March 4, 1903; died September 23, 1929.

ILG, George Martin Aloysius. Elected Member, March 12, 1923; died June 28, 1929.

LUCEY, John. Elected Associate Member, January 13, 1919; died September 16, 1929.

ROSTOCK, John Henry. Elected Member, May 3, 1910; died March 18, 1929.

SANDSTROM, Arthur Charles. Elected Associate Member, May 31, 1916; Member, July 16, 1928; died August, 1929.

TODD, Alexander Miller. Elected Junior, October 1, 1895; Associate Member, October 2, 1901; Member June 6, 1905; died September 11, 1929.

WALL, James Joseph. Elected Associate Member, December 14, 1925; died August 16, 1929.

WILLIAMS, William Fish. Elected Member, April 4, 1906; died October 1, 1929.

Total Membership of the Society, October 8, 1929

Members	**5 629**	
Associate Members	**5 982**	
Corporate Members		**11 611**
Honorary Members		**15**
Juniors		**2 094**
Affiliates		**141**
Fellows		**7**
Total		**13 868**